



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
5039
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0221772	JR0159294	JR0210627
Sample Date		Client Info		25 Jun 2024	17 Apr 2024	14 Mar 2024
Machine Age	hrs	Client Info		8044	7681	7413
Oil Age	hrs	Client Info		1000	500	500
Filter Age	hrs	Client Info		1000	500	500
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	15	14	20
Chromium	ppm	ASTM D5185m	>20	1	<1	1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	16	14	22
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	2	<1	3
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

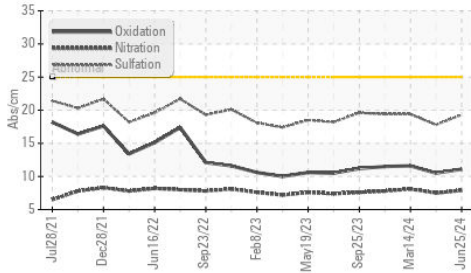
Silicon	ppm	ASTM D5185m	>25	5	4	6
Potassium	ppm	ASTM D5185m	>20	3	2	3
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	7.9	7.5	8.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.3	17.8	19.4
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

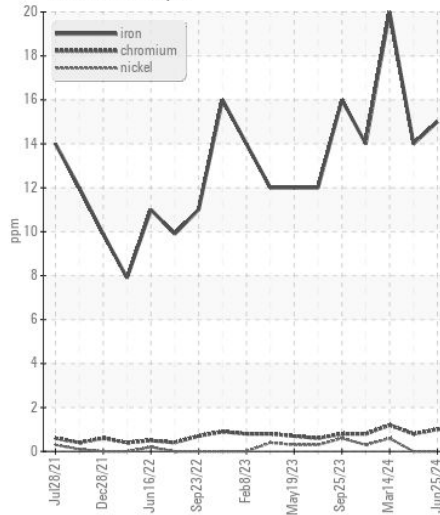
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	0	2
Boron	ppm	ASTM D5185m	316	4	<1	2
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	6	3	3
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	83	62	43
Calcium	ppm	ASTM D5185m	2292	2594	2480	2319
Phosphorus	ppm	ASTM D5185m	1064	1005	971	889
Zinc	ppm	ASTM D5185m	1160	1198	1210	1076
Sulfur	ppm	ASTM D5185m	4996	4712	4762	3943
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.1	10.5	11.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	6.0	6.2	6.1
Visc @ 100°C	cSt	ASTM D445	15.7	13.2	13.4	13.3

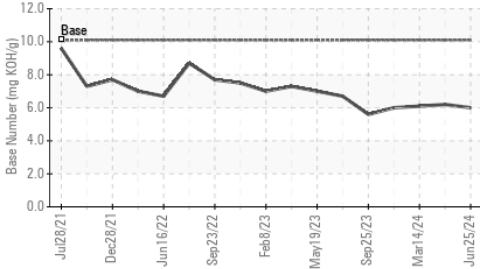
FT-IR (Direct Trend)



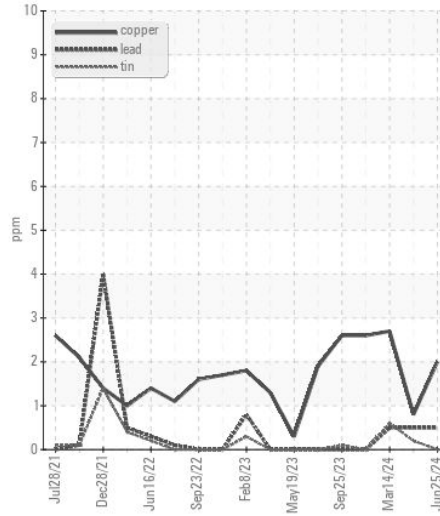
Ferrous Alloys



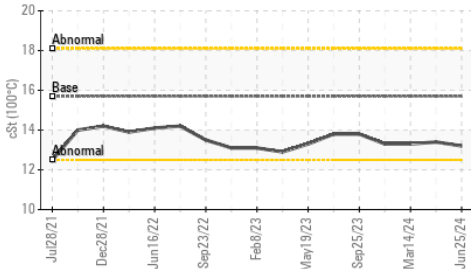
Base Number



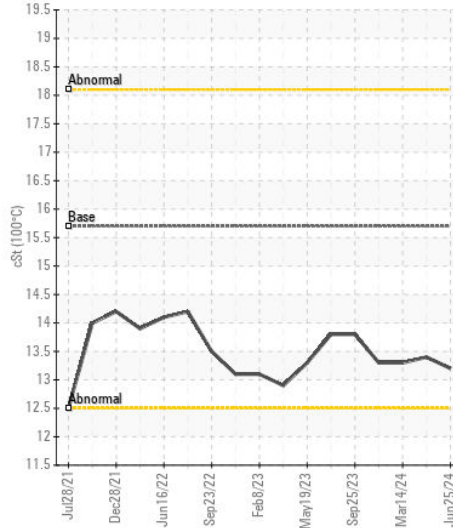
Non-ferrous Metals



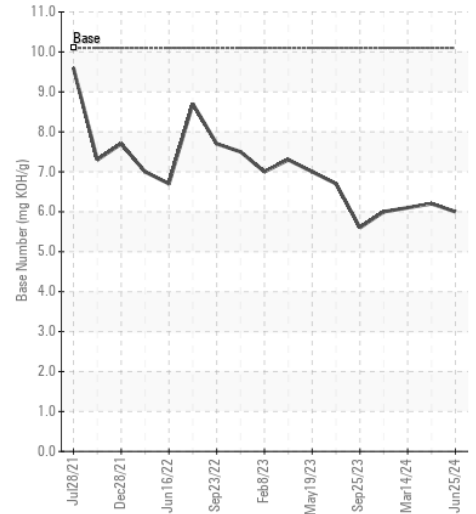
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0221772 **Received** : 18 Jul 2024
Lab Number : 06240147 **Tested** : 19 Jul 2024
Unique Number : 11128981 **Diagnosed** : 19 Jul 2024 - Don Baldrige
Test Package : CONST (Additional Tests: TBN)

PATRIOT DEVELOPMENT CORP
 22721 LADBROOK DRIVE STE 120
 STERLING, VA
 US 20166
 Contact: ROBERT MOSS
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To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

T:
F: